Auxiliary Power Supplies

APS6A, APS10A

Overview

The Auxiliary Power Supply (APS) is a self-contained 24 Vdc power supply designed to augment fire alarm audible and visual power requirements as well as provide auxiliary power for life safety and security applications. The APS contains all of the necessary circuits to monitor and charge batteries, control and supervise four Class B or two Class A NAC circuits and monitor two controlling inputs from external sources.

Each Auxiliary Power Supply is supplied with its own extra large enclosure providing space for up to two 24 Ah batteries and additional option modules in a number of mounting configurations. Option modules can be installed on the mounting brackets inside the enclosure or on an MP2L mounting plate at the top of the enclosure. The SIGA-REL, and SIGA-UIO2/6/6R can also be mounted at the top of the enclosure.

Standard Features

- Extends power available to Notification Appliance Circuits (NACs).
- Provides strobe synchronization.
- Available in 10 amp and 6.5 amp versions.
- Power LED remains visible with cabinet door closed.
- Integrated mounting options for interface modules.
- Includes four independent 3 amp NACs – each configurable as auxiliary outputs.
- Configurable signal rates.
- Field selectable input-to-output correlation.
- Two inputs allow activation by Signature Series modules or existing NACs.
- NACs configure for either four Class B or two Class A circuits. Additional Class A NACs can be added by using intelligent addressable modules (SIGA-UM or SIGA-MAB).
- 110 Vac and 230 Vac versions
- On-board status LEDs for easy recognition of wiring faults.
- Supports up to 24 Amp hour batteries for fire and security applications, up to 65 Amp hour for access control applications.

Application

The Auxiliary Power Supply provides additional power for audible and visual devices helping remove system capacity or site application constraints. The APS may also be used to power auxiliary access control and security devices, in addition to fire devices.

Fault conditions detected by the APS will open the main panel's NAC. This initiates a trouble condition and eliminates the need to wire a separate trouble contact back to the control panel. During alarm condition, detected faults are overridden and the main panel's default configuration is continuous 24 Vdc on all NACs typically used to drive visual devices. An on-board trouble contact is supplied for applications requiring trouble contact monitoring.

The auxiliary power supply provides the capability to maximize available power by being able to supply power for multiple services including access control, security and fire alarm functions. For security applications, space is provided to mount a tamper switch in the cabinet. When used for fire alarm notification with Genesis® notification appliances, the APS provides the ability to synchronize strobes as well as horn signals. APS flexibility allows synchronization with upstream devices or, the APS may be used to synchronize downstream devices, as well as other APSs and their connected devices.

APS notification appliance circuits easily configure for either of two signaling rates: 3-3-3 temporal or continuous. California rate is also available on certain models. This makes the APS ideal for applications requiring signaling rates not available from the main panel. It also allows independent setup of a notification appliance circuit without interfering with the main panel and its initiating circuits.

In addition to the generated signal rates, the APS can also be configured to follow the coded signal rate of the main panel's notification appliance circuit. This allows seamless expansion of existing NACs.

The APS includes seven on-board LED indicators: one for each resident NAC; one for battery supervision; one for ground fault; and, one for ac power. The trouble contact has a sixteen second delay when an ac power failure or brownout condition is detected. This reduces the reporting of troubles during short duration ac brownouts.

NAC configuration options include: ac power fail delay (16 seconds or 6 hours); sensing input to NAC output correlations; and, auxiliary outputs. All NACs are configurable as auxiliary outputs. Auxiliary outputs can be always on, or off after 30 seconds without ac power. As auxiliary output, the APS may power access control and security devices. Should an overcurrent occur, the APS automatically opens the circuit. The APS automatically restores the circuit when the overcurrent condition is removed. Jumpers configure the APS for Class A or Class B wiring.

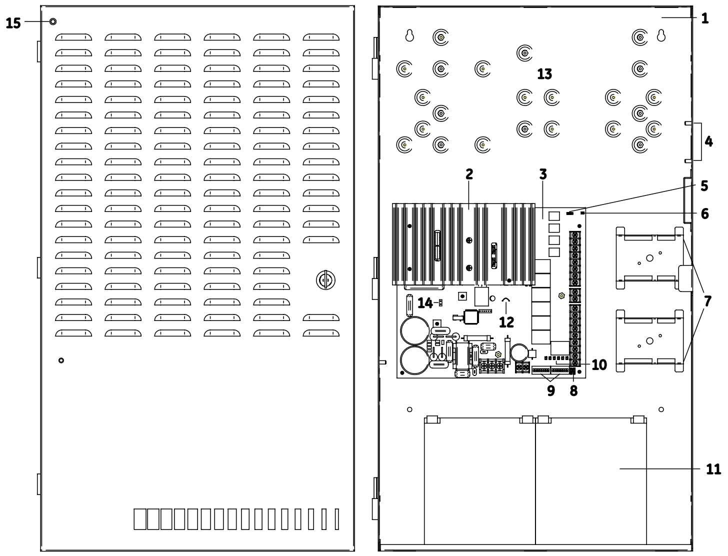
Engineering Specification

Supply where needed ADT APS Series Auxiliary Power Supplies as an extension of Notification Appliance Circuits. The extension shall be in the form of a stand alone auxiliary power supply. The supply must incorporate its own standby batteries. Batteries must be sized for <24>, <60> hours of standby followed by <5>, <30> minutes of alarm. It must be possible to support up to 24 Amp hour batteries.

The auxiliary supply must incorporate four independent supervised Notification Appliance Circuits. It shall be possible to configure the NACs to follow the main panel's NAC or activate from intelligent Signature Series modules. The auxiliary NACs must be configurable to operate independently at any one of the following rates: continuous, California Rate, or 3-3-3 temporal. Fault conditions on the auxiliary shall not impede alarm activation of host NAC circuits.

The auxiliary power supply must be able to provide concurrent power for notification devices, security devices, access control equipment and auxiliary devices such as door holders. The APS must provide the ability to synchronize Genesis series strobes and horns.

Cabinet Layout

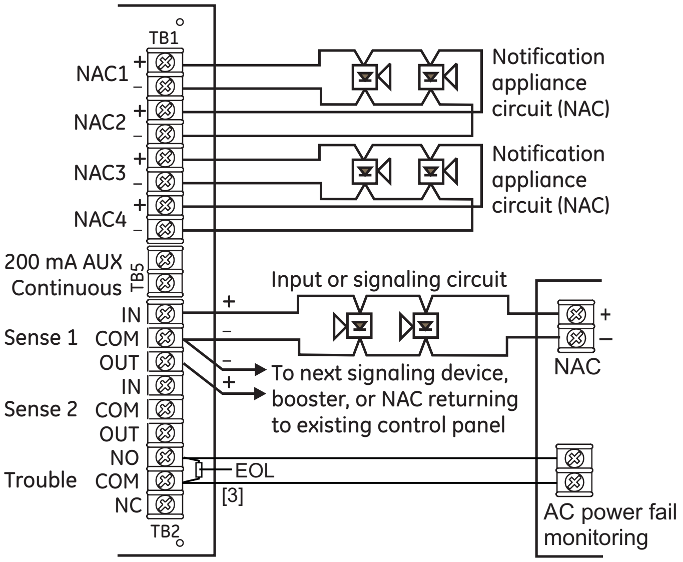


1 Enclosure: Houses the electronics and two standby batteries
2 Heat sink: Distributes heat away from the circuit board
3 Circuit board: Provides connections for all circuits
4 Tamper switch standoffs: 3-TAMP mounting standoffs
5 Jumper JP3: Ground fault enable or disable option
6 AC LED: AC power on
7 Mounting brackets: Option module mounting brackets
8 Jumpers JP1 and JP2: Class A or Class B NAC option
9 DIP switches: Two eight-position DIP switches used for configuration
10 Circuit LEDs: NAC, battery, and ground fault trouble LEDs
11 Batteries: Up to two 12 V 24 Ah batteries fit in the enclosure. For larger batteries, use an external battery cabinet (BC-1R or BC-2).
12 Jumper JP4: Battery charging jumper
13 Option module (SIGA-REL, SIGA-UIO6/6R/2, SIGA-MP2L) mounting area
14 Remote LED wiring harness connection
15 Remote LED: Indicates AC power is on

Typical Wiring

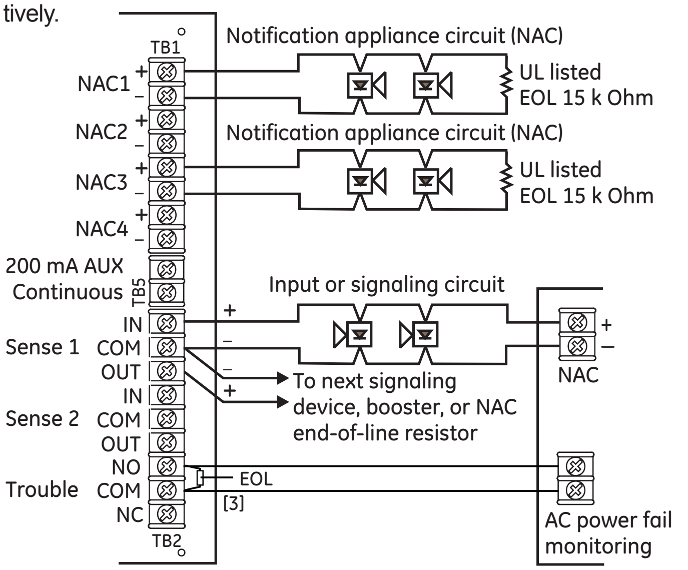
NAC Class A (Style Z) wiring

Connect a single NAC circuit to one NAC output. Terminate the circuit with a 15 k Ohm EOL resistor.


TB1
NAC1 + –
NAC2 + –
NAC3 + –
NAC4 + –
200 mA AUX Continuous
TB5
Sense 1 IN COM OUT
Sense 2 IN COM OUT
Trouble NO COM NC
TB2
Notification appliance circuit (NAC)
Notification appliance circuit (NAC)
Input or signaling circuit
+
–
–
+
To next signaling device, booster, or NAC returning to existing control panel
+
–
NAC
EOL
[3]
AC power fail monitoring

NAC Class B (Style Y) wiring

Connect one NAC circuit to one NAC output, either NAC1 or NAC3. Terminate the circuit at the NAC2 or NAC4 terminal screw, respectively.



NAC wiring notes:

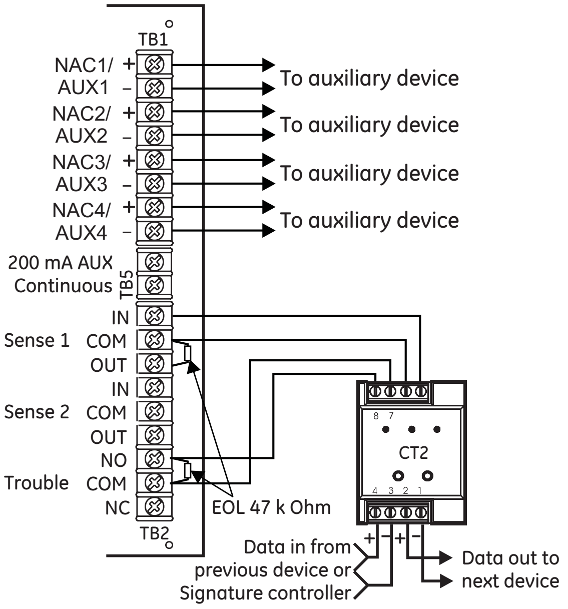
1. A trouble on the APS is sensed on the existing control panel's NAC circuit causing a NAC trouble on that panel. This removes the need to separately monitor the trouble contact except for AC power failure (see [3] below).

   In an alarm condition, the APS allows NAC current to move downstream to devices connected to the existing control panel's NAC circuit.
2. Refer to the connected control panel's documentation for more details on NAC wiring.

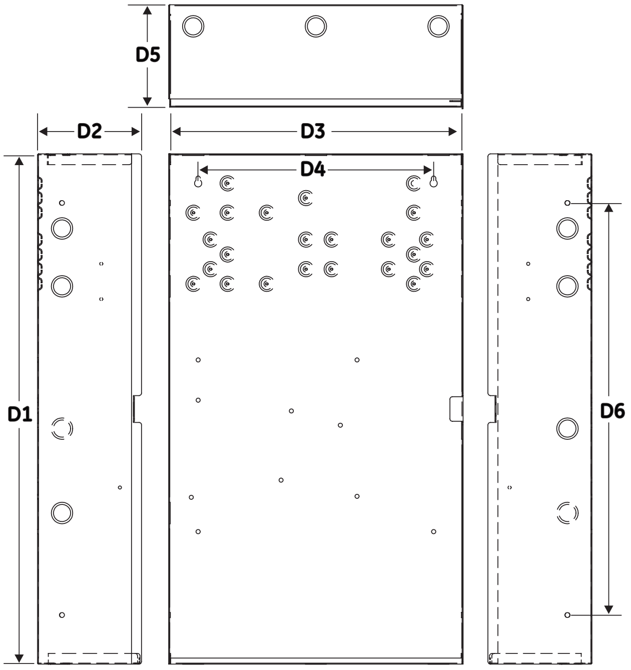
[3] The AC power failure panel connection annunciates at the panel but does not report off premises for a predetermined time period in U.S. fire applications.

Trouble relay wiring with four AUX circuits

When all four NAC/AUX circuits are configured as AUX circuits and DIP switch SW2-6 is ON, a SIGA-CT2 module must be used to monitor the sense 1 trouble contacts and the trouble relay.



Dimensions



D1	D2	D3	D4	D5	D6
26.0 in (66 cm)	5.3 in (13.5 cm)	15.0 in (38 cm)	12 in (30.5 cm)	5.3 in (13.5 cm)	21.0 in (53.3 cm)

Specifications

Model	6.5 amp APS	10 amp APS
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 250 watts	120VAC or 220-240VAC 50/60Hz 375 watts
Sense voltage (input)	6 to 45 Vdc, 11 to 33 Vrms (FWR and unfiltered DC)	
Sense current (input)	6 mA @ 24 Vdc, 3 mA @ 12 Vdc, 12 mA @ 45 Vdc	
NAC/AUX output voltage	19.1 to 26.85 Vdc	
NAC/AUX output current	3.0 A max. per circuit (10 A or 6.5 A max. total for all NACs) (10 A or 6.5 A max. total for all AUXs) [2]	
NAC/AUX class	Class B (Style Y) or Class A (Style Z)	
Wire size	18 to 12 AWG (0.75 to 2.5 sq mm)	
NAC EOL	UL: 15 k Ohm (P/N EOL-15) ULC: Use P/N EOL-P1 and select the 15 k Ohm resistor	
Auxiliary output (continuous)	1 dedicated 200 mA auxiliary output, not supervised by APS, included in total current	
Common trouble relay	Form C, 1 A, 30 Vdc (resistive)	
Battery requirements [1]	6.5 to 24 Ah for fire and up to 65 Ah for security applications Under 10 Ah, cut JP4. 10 Ah or above, do not cut JP4.	
Battery charger current limit	1.2 A when the battery jumper wire is cut 2.1 A when the battery jumper wire is not cut	
Operating environment		
Temperature	32 to 120 °F (0 to 49 °C)	
Humidity	0 to 93% RH, noncondensing	
Ground fault impedance	10 k Ohm	
Intended installation environment	Indoor-dry	

[1] The maximum battery size the panel can charge is 24 Ah (12V24A or equivalent) for fire and security applications.

[2] The maximum current is 8 amps for auxiliary circuits that operate when the panel is in standby.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
APS6A	6.5 Amp Auxiliary Power Supply	26 (11.8)
APS6A/230	6.5 Amp Auxiliary Power Supply (220V)	
APS10A	10 Amp Auxiliary Power Supply	
APS10A/230	10 Amp Auxiliary Power Supply (220V)	

Related Equipment		
12V6A5	12 V, 7.2 Amp Hour Battery, two required	3.4 (1.6)
12V10A	12 V, 10 Amp Hour Battery, two required	9.5 (4.3)
12V17A	12 V, 18 Amp Hour Battery, two required	13 (5.9)
12V24A	12 V, 24 Amp Hour Battery, two required	20 (9.07)
12V40A	12 V, 40 Amp Hour Battery, two required (see notes 1, 2)	32 (14.5)
12V50A	12 V, 50 Amp Hour Battery, two required (see notes 1, 2)	40 (18.14)
12V65A	12 V, 65 Amp Hour Battery, two required (see notes 1, 2)	49 (22.2)
3-TAMP	Tamper switch	1.0 (0.6)
BC-1R	Battery Cabinet (up to 2 - 40 Amp Hour Batteries)	58 (26.4)

Notes

1. Requires installation of separate battery cabinet.
2. APS supports batteries greater than 24 Amp hours for access control applications only.

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